Detailed Report

Workshop on- "Applications of Calculus in Solving Engineering Problems" (Two-days)

Subject Area- Research Methodology

Organized by- Department of Applied Sciences and Humanities

Fundamental theorem of calculus allows one to solve a much broader class of problems. Some engineers directly use calculus in their daily practice and some use computer programs based on calculus that simplify engineering design. Two methods of calculus, differentiation and integration, are particularly useful in the practice of engineering, and are generally used for optimization and summation, respectively. Our management admitted that to mitigate the potentially disjoint nature of infused engineering applications, some institutions have developed stand-alone calculus courses for engineers to make their research more adaptable. From a practical perspective, college faculty prearranged a two-day workshop on **"Applications of Calculus in Solving Engineering Problems (Research Methodology)"**on 08/03/2018-09/03/2018 in the college campus.

The Department found that it has great applications in engineering as well as management related fields. In this workshop, 29 students enrolled themselves and esteemed speakers Dr. Shailendra Kumar, AP, ASH and Prof. Manisha Kumar, AP, ASH graced the occasion and disseminated information about using graphs to find solutions to engineering problems and represent variables in

engineering systems. From a practical viewpoint they also discussed that an Architect Engineer uses integration in determining the amount of the necessary materials to construct curved shape constructions and also to measure the weight of that structure. Calculus is used to improve the architecture.

In Electrical Engineering, Calculus (Integration) is used to determine the exact length of power cable needed to connect two substations, which are miles away from each other.In Physics, Integration is very much needed to calculate the Centre of Mass, Centre of Gravity and Mass Moment of Inertia of a sports utility vehicle.To calculate the velocity and trajectory of an object, predict the position of planets, and understand electromagnetism.There was a special session in which focus shifted to using differentiation and integration for determining the rate of change, turning points, maximum, minimum and optimum values. Statisticians use calculus to evaluate survey data to help develop business plans for different companies. Because a survey involves many different questions with a range of possible answers, calculus allows a more accurate prediction for the appropriate action.

This information opened many opportunities for students to learn and make calculus an integral part of their careers. This would make them unique and confident in this subject area. Students energetically participated and made this seminar a success.

ESHAN COLLEGE OF ENGINEERING HEAD DEPT. OF APPLIED SCIENCE & HUMANITIES Farah Mathura

ESHAN COLLEGE OF ENGINEERING (471) DIRECTOR MATHURA